

Descriptions

These N-channel MOSFET are produced using advanced plane MOSFET Technology, which provides Low on-state resistance, high switching performance and excellent quality. These devices are suitable device for SMPS, high Speed switching and general purpose applications.

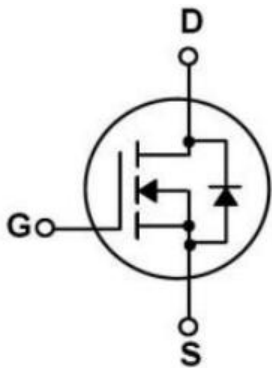
Features

- $V_{DS} = 500V$
- $I_D = 20A$ @ $V_{GS} = 10V$
- $R_{DS(ON)}$ (Typ) = 0.22Ω @ $V_{GS} = 10V$

Applications

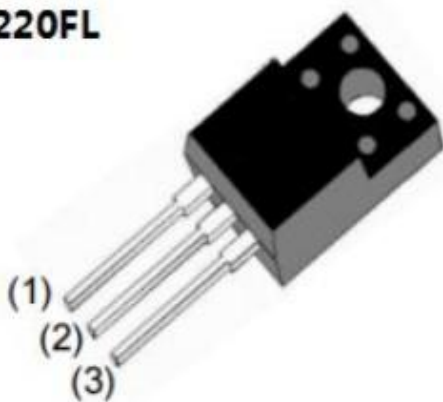
- Power Supply
- PFC
- High Current, High Speed Switching

Equivalent Circuit



Pinning

TO-220FL



PIN1:Gate PIN 2:Drain PIN 3:Source

Absolute Maximum Ratings(Ta=25°C)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	500	V
Drain Current	$I_D(T_C=25^{\circ}\text{C})$	20	A
Drain Current	$I_D(T_C=100^{\circ}\text{C})$	12.9	A
Drain Current - Pulsed	I_{DM}	80	A
Gate-Source Voltage	V_{GS}	± 30	V
Single Pulsed Avalanche Energy	E_{AS}	1100	mJ
Repetitive Avalanche Energy	E_{AR}	25	mJ
Avalanche Current	I_{AR}	20	A
Power Dissipation	$P_D(T_C=25^{\circ}\text{C})$	43	W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to 150	$^{\circ}\text{C}$
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	62.5	$^{\circ}\text{C/W}$
Thermal Resistance, Junction to Case	$R_{\theta JC}$	2.9	$^{\circ}\text{C/W}$

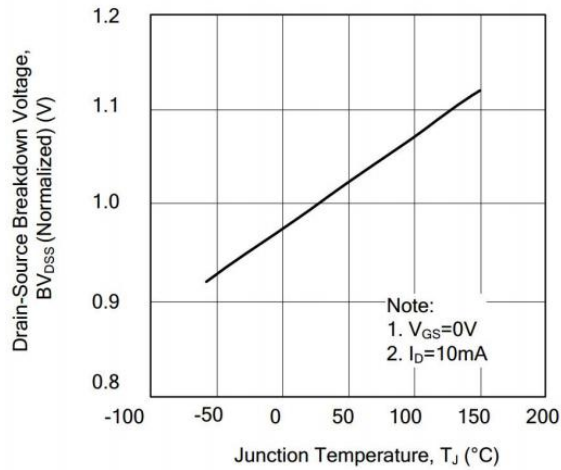
Electrical Characteristics(Ta=25°C)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DS}	$V_{GS}=0V$ $I_D=250\mu A$	500			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=500V$ $V_{GS}=0V$			10	μA
		$V_{DS}=400V$ $T_C=125^{\circ}\text{C}$			100	μA
Gate-Body Leakage Current Forward	I_{GSS}	$V_{GS}=\pm 30V$ $V_{DS}=0V$			± 0.1	μA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=250\mu A$	3.0		5.0	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V$ $I_D=10A$		0.22	0.26	Ω
Input Capacitance	C_{iss}	$V_{DS}=25V$ $V_{GS}=0V$ $f=1.0\text{MHz}$		3400		pF
Output Capacitance	C_{oss}			330		
Reverse Transfer Capacitance	C_{rss}			25		
Total Gate Charge	Q_G	$V_{DS}=400V$, $I_D=20A$, $V_{GS}=10V$		55		nC
Gate-Source Charge	Q_{GS}			12		
Gate-Drain Charge	Q_{GD}			15		

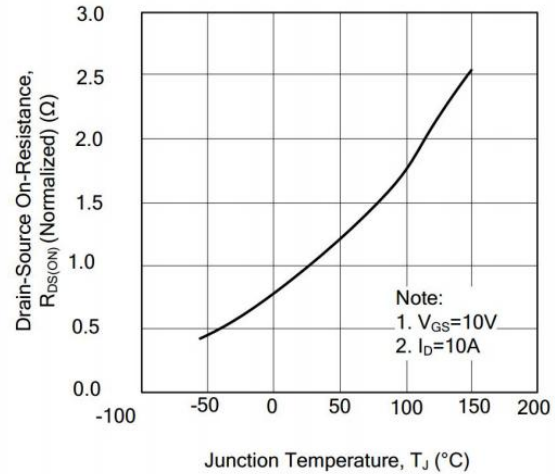
Electrical Characteristics(Ta=25°C)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=250V$ $I_D=20A$ $R_G=25\Omega$		35		ns
Turn-On Rise Time	t_r			32		
Turn-Off Delay Time	$t_{d(off)}$			172		
Turn-Off Fall Time	t_f			73		
Maximum Continuous Drain-Source Diode Forward Current	I_S				20	A
Maximum Pulsed Drain-Source Diode Forward Current	I_{SM}				80	A
Drain-Source Diode Forward Voltage	V_{SD}	$V_{GS} = 0V$, $I_S = 20A$			1.4	V
Reverse Recovery Time	t_{rr}	$V_{GS} = 0V$, $I_S = 20A$, $dI_F/dt = 100 A/\mu s$		420		nS
Reverse Recovery Charge	Q_{rr}			6500		nC

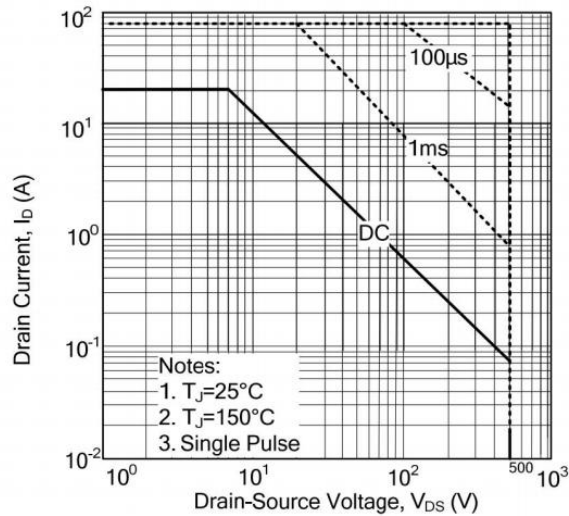
Electrical Characteristic Curve



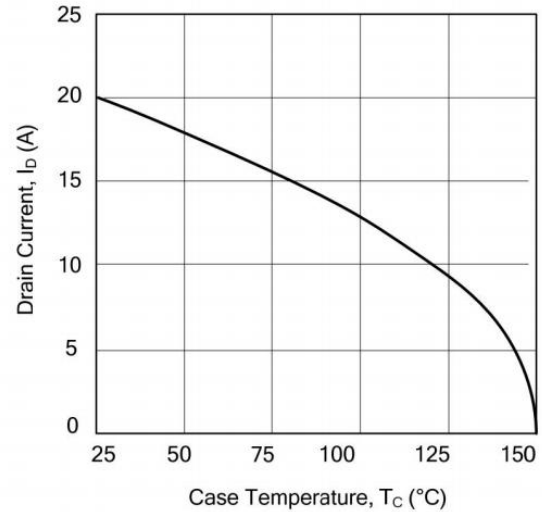
1. Breakdown Voltage Variation vs. Temperature



2. On-Resistance Junction Temperature

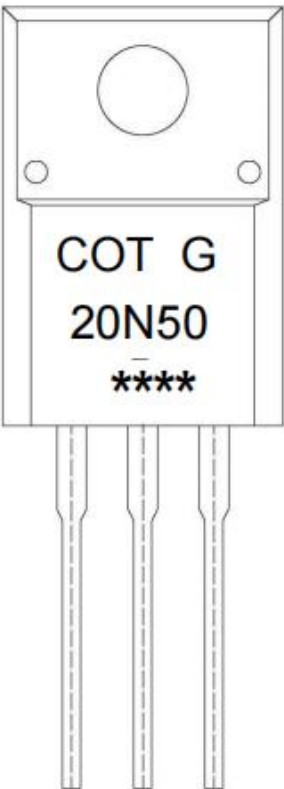


3. Safe Operating Area



4. Maximum Drain Current vs. Case Temperature

Marking Instructions



Note:

COT: Company Logo

G: Halogen Free

20N50: Product Type.

****: Lot No. Code, code change with Lot No.

Packaging SPEC.

TUBE INFORMATION

Package Type	Units					Dimension (unit: mm ³)		
	Units/Tube	Tubes/Inner Box	Units/Inner Box	Inner Boxes/Outer Box	Units/Outer Box	Tube	Inner Box	Outer Box
TO-220FL	50	20	1,000	5	5,000	532×33×7.0	555×164×50	575×290×180

Package Outline Dimensions

TO-220FL

单位: mm

